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REPLY

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Joseph Bankman* & David Weisbach**

INTRODUCTION

We appreciate the opportunity to comment on Dan Shaviro's important piece on how the permanent income hypothesis relates to tax policy.[1] In this piece, Shaviro points out that the arguments in favor of a consumption tax on the one hand, and income averaging on the other, raise significantly related issues. As far as we know, Shaviro is the first person writing in the legal literature to make this connection, and his insightful work is sure to inspire further explorations of the issue.[2]

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1. Daniel Shaviro, *Beyond the Pro-Consumption Tax Consensus*, 60 STAN. L. REV. 745 (2007).

2. *See also* Mitch Engler, Tax Neutrality, Vickrey Averaging, and Income Versus Consumption Taxation 33-36 (Apr. 5, 2007) (unpublished manuscript), *available at* http://www.law.nyu.edu/colloquia/taxpolicy/papers/07/Mitch_Engler_Tax_Neutrality.pdf

Shaviro's basic claim is that the permanent income hypothesis is a central underpinning of both the arguments for income averaging and consumption taxation. Market or rationality imperfections that limit the permanent income hypothesis similarly weaken the case for income averaging and consumption taxation. In particular, Shaviro raises a number of important complexities regarding the choice between an income tax and a consumption tax that are related to how capital markets work and how individuals choose their consumption patterns. He claims that these complexities make the efficiency and distributional case for a consumption tax sufficiently nuanced and dependent on empirical assumptions that the choice of tax base is better made on administrative grounds. On administrative grounds, however, Shaviro strongly prefers a consumption tax, notwithstanding the title of his article.

We agree with three of the central points of Shaviro's argument: that more complex models of behavior are likely to weaken the strong conclusions one gets from simple models; that administrative concerns may well be dominant; and that a consumption tax remains the preferred tax base. Like Professor Shaviro, we think that additional research into administering consumption taxes should be given a high priority.

The fact that we are in broad agreement on these issues may surprise readers of his article. Shaviro writes that his analysis "refute[s] the conclusion of a recent leading article," and it is our article he cites.[3] The structure of his article is to cite our article for its presentation of the core argument in favor of a consumption tax, and then to critically discuss the assumptions on which that argument relies. The implication is that our article ignores these assumptions. In fact, the bulk of our article is devoted not to presenting the core argument in favor of a consumption tax, but to critically discussing the assumptions on which it relies. We discussed in detail no less than ten such assumptions and we concluded that "a complete, optimal tax analysis could produce exotic taxes that look like neither a pure consumption tax nor a pure income tax."[4] This conclusion is similar to the conclusion reached by Professor Shaviro.

In other respects, however, our papers and analyses differ. Shaviro's primary goal is to show the connections between the permanent income hypothesis, income averaging, and the consumption tax debate. A secondary goal is to show the divergence between an ideal welfarist tax and a consumption (or income) tax. Flaws in the consumption (or income) tax matter to him even if they don't clearly alter the relative merits of the consumption tax over the income tax.

(exploring the related issues raised by income averaging and consumption taxation).

3. Shaviro, *supra* note 1, at 750 n.18, *referring to* Joseph Bankman & David A. Weisbach, *The Superiority of an Ideal Consumption Tax over an Ideal Income Tax*, 58 STAN. L. REV. 1413 (2006).

4. Bankman & Weisbach, *supra* note 3, at 1416.

Our paper focuses on the choice between an income tax and a consumption tax. We focus on this choice, rather than the possibility of exotic taxes suggested by some of the optimal tax literature, for two reasons. First, these are the two leading tax bases, and real world reforms will be aimed at moving the tax system toward one of those two bases. Second, relatively simple and transparent taxes reduce political economy problems, such as rent seeking, that more complex taxes create.

While we agree with Shaviro that the study of administrative and compliance costs is vital, we believe that analysis of the efficiency and distributional effects of the two ideal systems remains relevant. The reason for this is that we cannot measure the benefits of administrative and compliance cost savings without a reference point. For example, if a consumption tax is easier to implement, we need to know if an income tax is otherwise desirable to be able to determine whether the administrative savings are worth the costs in using the less preferred base.

Our two papers also differ in their evaluation of the simplifying assumptions made in the base case for a consumption tax. We conclude that, even once one examines these assumptions, including the assumptions that Shaviro finds most questionable, a consumption tax is superior to an income tax. Shaviro does not take a position on that issue.

I. OUR ANALYSIS IN *THE SUPERIORITY OF AN IDEAL CONSUMPTION TAX*

A. *Basic Argument*

Whether the tax system ought to be built around an income or a consumption tax has been a primary—some would say *the* primary—issue in tax policy for many years. Both tax bases have some attractive features. However, most scholars (including Professor Shaviro) believe that a consumption tax would be easier to implement and superior in that respect. Support for an income tax, therefore, is generally based on the belief that an income tax is fairer or (less frequently argued) more efficient than a consumption tax. Our article focuses on (and rejects) the fairness and efficiency arguments made in support of an income tax.

We begin by assuming that individuals in society vary along one or more dimensions, and in particular, in their ability to earn. The government wants to redistribute toward those with low ability to earn for some reason, whether it is declining marginal utility of income or an aversion to inequality. Unfortunately, it cannot directly observe ability, so it must rely on signals such as income or consumption. If it taxes high incomes at too high a rate, individuals will choose to work less, thereby reducing the government's ability to redistribute. The complicated balancing between redistribution and working less was analyzed in

detail in James Mirrlees's work on optimal taxation.[5]

Mirrlees imagined that individuals varied by their ability to earn—effectively their wage rate—and that the government imposed a tax only on labor income. Would a tax on savings help in such a system? The answer—given by Atkinson and Stiglitz in 1976 and further developed by Louis Kaplow in recent years—is no.[6] The reason is that anything we can achieve with a tax on savings can be achieved better by an adjustment to the rate schedule to the tax on labor income.

Consider the following illustration, previously set forth by one of the authors:

> [S]uppose that there is a 20 percent income tax. Suppose also that an individual earns $250 before taxes, pays a $50 tax on his labor income, and is left with $200 to spend. Finally, suppose that the individual spends $100 today and saves $100 for his retirement in 25 years. The annual interest rate on savings is 5 percent.
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> Under the income tax, as normally conceived, the tax on capital income reduces the return on the savings by the tax rate, here from 5 percent to 4 percent. Thus, with no taxes on savings, the individual in retirement would have the future value of $100 at 5 percent, or roughly $340 to spend. With taxes, the individual earns only 4 percent and his future consumption is reduced to about $270. The reduction in future consumption from $340 to $270 is like a 20 percent excise tax on that future consumption.
>
> Suppose that instead of the conventional income tax, we impose a tax on labor income at 29 percent, a subsidy of 12 percent for current consumption, and a 12 percent tax on future consumption. Under this tax, the individual has after-tax wages of approximately $180. If he spends half this amount, $90, and receives the 12 percent subsidy, he can spend $100 today as before. He saves the other half of his after-wage-tax earnings and must pay the additional 12 percent tax on savings. This leaves him with about $80, which grows at the pretax interest rate to the same $270. . . . If the individual would choose this pattern under the usual income tax, he could also choose this pattern under the [restated] tax.[7]

The wage or labor income tax in this example (without the subsidy for spending and the tax on saving) is the implicit tax on labor income imposed by the nominal rate under the income tax. We know that the actual tax imposed on labor income by an income tax is higher than the nominal rate because the tax reduces the benefit of working by more than the nominal rate. The reason is

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5. *See, e.g.*, J.A. Mirrlees, *An Exploration in the Theory of Optimum Income Taxation*, 38 REV. ECON. STUD. 175 (1971).

6. A.B. Atkinson & J.E. Stiglitz, *The Design of Tax Structure: Direct Versus Indirect Taxation*, 6 J. PUB. ECON. 55 (1976); Louis Kaplow, *On the Undesirabitility of Commodity Taxation Even When Income Taxation Is Not Optimal*, 90 J. PUB. ECON. 1235 (2006).

7. David Weisbach, Comment, *in* TAXING CAPITAL INCOME 143, 145 (Henry J. Aaron et al. eds., 2007) (footnote omitted). The numbers in the text reflect very crude rounding to simplify the presentation.

that it also reduces one of the benefits of working: future consumption. An hour of work brings both less immediate benefit due to the explicit labor portion of the tax and also less of one of the items one might want with one's wages: future consumption. To find the implicit rate on labor income, we find the rate where the set of taxes and subsidies on consumption choices is zero. At this point, we have captured the full effect of the tax on the benefits of working. With the numbers in the example, this rate is 29%. The restated tax simply makes this implicit tax explicit.

Compare the 29% wage tax to the income tax. By construction, they both impose the same tax on labor income. Therefore, labor effort and the labor/leisure distortion will be the same under the two taxes. This also means that both taxes raise the same revenue from wages. The income tax, however, has the offsetting tax and subsidy. This combination produces no additional revenue but distorts savings decisions.[8] The wage tax eliminates this distortion. Leaving aside possible second-best issues discussed in our article, the wage tax is, therefore, superior for this individual. The individual has the same distortion in work effort and government revenues are the same, but the individual is able to make less distorted savings decisions.

The restated tax in this example was a tax on labor income. As is well known and illustrated in our article, however, a tax on labor income is equivalent to a consumption tax. Therefore, not only is the 29% wage tax the better choice in this example, but so is an equivalent consumption tax. A consumption tax at the right rate makes this individual better off and nobody worse off.

The analysis above concerned only a single individual and, therefore, did not take into account distributional effects. We can, however, perform the same normalization within each wage class, making the implicit tax on labor income explicit. Those with higher wage income are likely to save more. The implicit tax on labor income in an income tax, therefore, will be relatively higher for high wage classes, which means that the explicit tax rate on labor income will be correspondingly higher for these classes.

For example, the implicit tax rate in the example discussed above was 29% because of the enormously high 50% savings rate. If the individual earned less and saved less—say he saved 5% of after-tax earnings—the implicit tax on labor income would be 21%. We can find the implicit tax rate on labor within each wage or income class. If the rich tend to save more than the poor, the procedure will produce a higher explicit labor tax rate on the rich than on the poor.

We can then compare an income tax with a wage or consumption tax that uses the implicit rates on labor income created by the income tax. For the same reasons that applied to the single-individual example, for each income class,

8. The distortion of savings makes labor income less valuable (because its use to fund future consumption is hobbled), and in that way the tax/subsidy distorts labor effort as well.

individuals in that class would be better off facing a consumption tax at the implicit rate than facing the income tax. If we replace the income tax with a consumption tax using these rates, therefore, individuals in each class—poor, middle, rich, and filthy rich—would be better off. Distributional concerns would be entirely resolved, and efficiency improved. That is, we can view the choice between an income tax and a consumption tax as merely the choice of whether to impose residual, revenue- and distribution-neutral subsidies for spending and taxes on savings. Imposing this residual tax is highly unlikely to be desirable both because we tend not to want to interfere with consumption choices and because of all the choices to interfere with, encouraging spending and penalizing savings seems like a bad one. For this reason, and in addition to administrative cost concerns, an ideal consumption tax is superior to an ideal income tax.

B. *Qualifications*

Like all models, the Atkinson and Stiglitz model rests on a number of simplifying assumptions. In our article, we discuss the effect of varying those assumptions by allowing for (1) risk; (2) economic rents (supernormal profits); (3) graduated rates on capital income; (4) the presence of wealth prior to the introduction of a consumption tax; (5) inheritances; (6) savings heterogeneity; (7) myopic savings behavior; (8) imputed income from capital; (9) complementarity between leisure and some forms of consumption; and (10) savings as an indicator good that signals ability.[9] All of these factors complicate the analysis. If tax administration were costless, some of these factors (such as the complementarity between consumption and leisure or indicator goods) would produce tax systems that look nothing like either an income or a consumption tax. We conclude, however, that given current constraints on information and administration, none of the factors substantially alters our conclusion that a pure consumption tax is superior to a pure income tax, and many make the case for a consumption tax stronger.

II. SHAVIRO'S ARGUMENT

Shaviro draws a connection between the permanent income hypothesis, income averaging, and consumption taxation. The permanent income hypothesis, in its most general form, simply states that individuals borrow and lend across time periods to maximize their utility based not on their current income but on their expected future income.[10] For example, one might imagine

9. *See* Bankman & Weisbach, *supra* note 3.

10. MILTON FRIEDMAN, A THEORY OF THE CONSUMPTION FUNCTION (1957); Robert E. Hall, *Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence*, 86 J. POL. ECON. 971 (1978); Franco Modigliani & Richard Brumberg, *Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data*, *in* POST-

that to the extent people can, they would equalize marginal utility across periods.

Income averaging attempts to equalize tax rates across periods so that one's rate is based on overall lifetime (or averaging period) income or consumption. Someone with level consumption and someone with variable consumption that has the same overall present value as the level consumption would both pay the same tax under an averaging system.

A consumption tax, Shaviro argues, relies on the same arguments. Suppose Bob and Jane each earn $100 today, and Bob consumes it all while Jane saves it until next year and consumes $110. A consumption tax treats them the same in the sense that it imposes the same present value tax on each. To be relevantly the same, Shaviro argues, we have to believe that Bob and Jane's decisions regarding when to consume maximize their well-being, which Shaviro argues means that they follow some version of the permanent income hypothesis.

Shaviro argues that the assumptions underlying the permanent income hypothesis—and by extension, the assumptions underlying the case for income averaging or a consumption tax—are shaky. Market imperfections in the credit or insurance markets may prevent individuals from maximizing utility across periods or may otherwise make income averaging or a consumption tax less desirable. Utility maximization may be thwarted by myopia and, finally, savings may serve as a signal of utility that again makes both income averaging and a consumption tax less desirable. Two of these four arguments—that taxpayers may be myopic and that savings may signal ability—were among the ten complexities we discussed in our article. We did not discuss the implications of failures in the credit or insurance markets. We consider each of Shaviro's arguments below. Before we begin this discussion, however, we should note that the vast majority of Shaviro's paper focuses on income averaging. Neither of us has, as of yet, thought seriously about how the permanent income hypothesis affects the case for income averaging beyond reading Shaviro's paper. We do not address it here. Instead, we focus on Shaviro's arguments concerning consumption taxation.

III. DISCUSSION

A. *Imperfections in the Credit Market*

Shaviro begins by discussing the implications of credit market imperfections. He gives the example of Caleb and Diana with the same lifetime consumption except that Caleb has level income while Diana has back-loaded earnings. If Diana cannot borrow against future earnings when she is young because of problems with capital markets, her lifetime welfare might be lower notwithstanding equal lifetime earnings. She cannot smooth her consumption,

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KEYNESIAN ECONOMICS 388 (Kenneth K. Kurihara ed., 1954).

and thus, assuming declining marginal utility of income, the decline in utility from low consumption in the first period is not offset by the increase in utility from high consumption in the later periods. We might think of Diana as a medical student or doctor just starting her practice. Diana is worse off than Caleb, whose consumption is equal across periods. A consumption tax, Shaviro argues, would treat Diana and Caleb the same when they are relevantly different.

The argument relies on credit constraints, but it is unclear how much of a social problem credit constraints are. Diana, in the example, can easily borrow to fund her medical school education and borrow to purchase her home. There are many sources of loans for starting a business. Loans to finance everyday consumption are available to essentially everyone through credit cards. Even with these many sources of credit, it is unclear if Diana would want smooth consumption. She might be happier as a student living in a dorm and eating inexpensive ethnic food, preserving more income to fund high consumption and a larger house in later years. Before using an income tax to offset market failures, we need to be sure that the market is actually failing.

Shaviro concludes that credit constraints undermine the case for a consumption tax but do not further the case for an income tax. In fact, the presence of credit constraints might be seen as a point in favor of an income tax over a consumption tax. The reason for this is that savings are a signal that an individual is not credit constrained. Savings correlates with an underlying attribute not affected by credit market imperfections. Lack of savings correlates with being affected by credit market imperfections. Since being credit constrained is undesirable, all else equal, savers as a whole might have higher utility or lower marginal utility than spenders. An income tax levies a higher tax on savers and in so doing, might redistribute from the better off (not credit constrained) to the worse off (credit constrained).

There are, however, a number of problems with this argument. First, it is not clear what portion of those who do not save are credit constrained. That is, we would have to have a sense of how good the signal is. It could be that many who do not save are myopic and wish they saved more, rather than being credit constrained and wishing they had spent more. As we note below, an income tax may exacerbate the problems caused by savings myopia.

Second, an income tax makes poor use of the signal. Even if savings is a good signal that an individual is not credit constrained, an income tax imposes a burden on each increment of savings even though the signal happens only on the first increment (or perhaps the increment beyond precautionary savings). Therefore, it will impose offsetting distortions that would have to be weighed against any benefits.

Finally, we would have to believe there were not better ways of dealing with imperfections in the credit market. For example, the best fix might be to loosen regulatory constraints or adopt policies that make borrowing cheaper. We might, for example, make it easier for individuals to get mortgages or credit

with which to purchase consumer durables. This, of course, flies in the face of current thinking (that there is too much easy credit) and supports our suggestion, above, that the problem posed by inadequate credit for the Dianas of the world may be more theoretical than real.

In sum, we believe the problem of insufficient credit is unlikely to have a meaningful impact on the debate between an income and a consumption tax.

B. *Inadequate Insurance Markets*

Shaviro argues that the new dynamic public finance (NDPF) literature significantly undermines the conclusions of hitherto conventional economical analysis of the desirability of a consumption tax and presents a strong rationale for taxing savings.[11]

The basic idea is to extend the standard optimal tax analysis over time. The government's role in the standard analysis is to redistribute from high ability individuals to low ability individuals to maximize a social welfare function. In Mirrlees' case, we can think of the government's role as offering insurance against having low wages. In the NDPF approach, the government also insures against wage *changes* over time. That is, an individual's wage rate or ability is assumed to be risky, possibly going up or down in the future. Private insurance against the risk of wage changes is assumed to be unavailable, so the government steps in to provide it. The government uses taxes and transfers to help in this role as insurer.

Given this insurance, individuals plan their labor effort and consumption based on their wage rates and the risk of higher or lower future wages. In economic jargon, individuals dynamically plan an optimal labor and consumption path in a multi-period game. They have anything but myopia in these models.[12] The government's problem is to maximize the sum of expected discounted utility given individual planning and given that it cannot observe ability.[13]

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11. *See* Shaviro, *supra* note 1, at 777, 785. Major works in the NDPF literature include Mikhail Golosov et al., *Optimal Indirect and Capital Taxation*, 70 REV. ECON. STUD. 569 (2003); Narayana R. Kocherlakota, *Zero Expected Wealth Taxes: A Mirrlees Approach to Dynamic Optimal Taxation*, 73 ECONOMETRICA 1587 (2005); Ivan Werning, Optimal Unemployment Insurance with Unobservable Savings (2002) (unpublished manuscript), *available at* http://econ-www.mit.edu/files/1267. For a summary of the literature, see Mikhail Golosov et al., *New Dynamic Public Finance: A User's Guide*, 2007 NBER MACROECONOMIC ANN. 317, *available at* http://econ-www.mit.edu/files/866.

12. A question for Shaviro's paper regards the inconsistency between arguing that individuals are myopic and arguing that we should believe the NDPF literature.

13. As with myopia, the NDPF literature makes an assumption that Shaviro elsewhere questions, which is that the government should maximize expected discounted utility. To the extent one believes Shaviro's arguments that the government should not sum up utility across periods, they undermine the NDPF arguments on which he relies.

In this setting, the private return to savings may not be the same as social return. One intuition is that the offer of insurance for someone who has low wages in a future period creates an incentive to work less to get the insurance benefits. Savings enhances the ability to shirk, ensuring consumption even with low labor effort. Therefore, there may be some role for taxes or subsidies on savings to help improve the tax/benefit scheme on labor income.

The literature is framed in terms of "wedges," which are the difference between the private and social return to savings. The private return is higher than the social return when the government offers insurance against wage changes. It takes a second and very complicated step to translate these wedges into taxes. Most often the taxes on capital are complicated, nonlinear functions of all prior period earnings and savings. Moreover, such taxes typically raise zero revenue, merely redistributing across spenders and savers. And they often are higher on those with low wages than on those with high wages because they are designed to prevent individuals from pretending that they have low ability when they are merely shirking. Except in specialized and unrealistic cases, they look nothing like income taxes.

The relevant question is whether or to what extent these arguments support an income tax. An initial observation is that they do not produce taxes that resemble income taxes. As mentioned above, the taxes are exotic and unintuitive. It is possible that with more modeling and empirical estimating of parameters, the best approximation to the resulting optimal tax is an income tax, but there is nothing in the current literature that points in that direction.

A second observation is that the results depend critically on the assumed parameters, and to get sizable wedges, the assumptions have to be made unrealistic. To illustrate, it will be useful to examine the model presented in a leading survey article cited by Shaviro and the benchmark case in the numerical simulations presented in that article.[14] In *New Dynamic Public Finance: A User's Guide*, Mikhail Golosov, Aleh Tsyvinski, and Ivan Werning present a two period model in which the government tries to address a failure in the insurance markets. In period one, individuals work and save. However, in period two, each individual faces a 50% chance of suffering a 50% decline in her skills. The government would like to insure individuals against that decline. However, it has no information whatsoever to know whether an individual claiming to have suffered this decline is lying. To put the matter differently, if we characterize this severe skill shock as a form of partial disability, every individual can "fake" this disability with 100% success. To prevent everyone from faking disability, the government sets the disability payments at less than the wages available to those who do not claim disability. Some individuals will respond to the presence of uncertainty, and the availability of even partial disability insurance, by saving a great deal in the first period. These individuals will disproportionately fake disability in the second period. Their saving in the

14. Golosov et al., *supra* note 11, at 336-46.

first period ensures that they will enjoy more level consumption in the two periods, and thus optimizes utility, conditional upon claiming disability in the second period. The authors calculate that the government should make this practice less desirable by levying a wealth tax of 5%. (There is no interest in this model, so tax on savings is actually a tax on wealth.)

The wealth tax in this model is due to the fact that there is no way to detect disability. As a result, there are no private disability markets, and the government is left with the second-best scheme to provide partial insurance and to support that scheme through a serious of otherwise undesirable taxes (including the wealth tax described above). In the real world, of course, there are private insurance markets. There are also ways to achieve insurance-like protection through explicit or implicit labor contracts or relationships. Examples of this include long-term contracts, union or civil service membership, and tenure or the de facto tenure found in many organizations. Where external insurance exists, in this model and other models in the literature, the tax on capital disappears.[15]

Absent any form of insurance, the magnitude of the capital tax in the model depends on the probability of a decline in skills. Because the government is performing an insurance function, the size of the implied capital tax falls as second period wages become more certain—whether the movement is toward a certain decline or a certain non-decline of skills. The magnitude of the implied tax on capital also declines with a decline in the magnitude of the adverse outcome. This is true even if individuals face the maximum uncertainty as to whether that outcome will be experienced. The tax on capital falls to near zero, for example, if individuals face a 50% chance of a decline of 10% in skills. In some cases, such as where individuals face a positive skill shock and risk aversion is high, the optimal tax on capital is negative—that is, the tax turns into a subsidy.

To summarize, the literature relies on government being the best and only provider of insurance against changes in income. Private markets either cannot exist or are entirely crowded out by the government. To get sizable taxes, the literature must assume a very high degree of uncertainty about future wages, both in terms of the likelihood of a change and the size of the change. Depending on the parameters, there can be a subsidy rather than a tax on capital. Moreover, even within the assumptions, the taxes that are produced are not anything like income taxes.

The NDPF literature is still too young to have produced multi-period models that incorporate realistic levels of income/skill variation and insurance protection. The literature is developing rapidly but it is simply too early to tell

15. Ken Judd makes a similar observation that the NDPF literature assumes the absence of private markets and argues that instead, "we should do as Mirrlees did, assume that private markets work, and then find the policy that best achieves the goal taking into account the presence of a private market." Kenneth L. Judd, Comment, 2007 NBER MACROECONOMIC ANN. 381, 382, *available at* http://econ-www.mit.edu/files/866.

whether it will produce robust conclusions and what those conclusions might be.

C. *Myopic Savings Behavior*

Shaviro points out correctly that standard arguments for both income averaging and a consumption tax rely on rational choice, and writes that "[w]eakening this assumption, such as positing that people are myopic, undermines the case for both averaging and consumption tax." He discusses myopia in any detail only in connection with the case for averaging. However, the logic of his argument and the statement quoted above suggest that his discussion of myopia in the context of income averaging ought to carry over to the consumption tax context.

Briefly stated, the argument that myopic savings behavior weakens the case for a consumption tax is as follows. A consumption tax has the seemingly attractive quality of levying the same present value tax on the same present value of consumption. If the interest rate is 10%, someone who earns and spends $100 will be treated as equally wealthy as someone who earns $100, saves it for a year and earns 10% of interest, and then spends $110 in the next year. In our discussion above and in our article, the choice between present and future consumption is treated similarly to the choice between vanilla and chocolate ice cream. We assume the individual chooses so as to maximize her utility but do not believe that we can say in advance which choice will leave the individual wealthier. Suppose, though, that some individuals act myopically, turning down opportunities to save even when the effective interest rate is extremely high. That would be evidence that non-savers are systemically worse off than the savers. A consumption tax ignores this effect. In contrast, an income tax recognizes the greater welfare of savers by levying a higher effective tax rate on that group.

In our article, we discuss the case for myopia and briefly review some of the empirical and experimental evidence.[16] We find that the evidence is inconclusive but can be read to show some sign of myopic savings behavior, particularly among lower income individuals. (Shaviro does not discuss the literature in as much detail, so we do not know if he would agree with this conclusion.) We further conclude, however, that myopia is more likely to strengthen, rather than weaken, the case for a consumption tax. The reason for this is that myopia leads to excessive current consumption and too little savings. A conventional response to the problem of too little savings would be to reduce the tax on savings. A consumption tax does this. An income tax does the opposite. It reduces the relative cost of consumption over saving and thus encourages consumption. Adopting an income tax, which encourages spending out of solicitude for those who are made worse by excessive spending, is

16. Bankman & Weisbach, *supra* note 3, at 1444-48.

perverse. It is like noting that smokers are worse off than non-smokers and as a remedy reducing the relative price of cigarettes.[17]

D. *Savings as Signal of Ability*

The final argument[18] Shaviro raises is that savings might be a signal of ability to earn. Consider two individuals with the same income but different savings. The individual with the savings might have higher ability and be working less hard. We can use the savings as a means of separating the two individuals and taxing the one with higher ability more.

This argument dates back to an article by James Mirrlees in 1976[19] and was made recently by Emmanuel Saez in 2002.[20] We discussed it in our prior work under the rubric of indicator goods.[21]

There are a number of serious problems with the argument. The first is that there is simply no evidence as of yet that savings indicates higher ability. Shaviro cites none. Saez cites a single paper which does not support the proposition.[22] It might some day be proven true, but right now it is not even a disputable proposition except through introspection.

Second, the mechanism that is claimed, through introspection, to support the claim that those who save have higher ability is that the need for savings and the sophistication to access capital markets is something that one gets through education, and that education is something that only the more able can obtain. If this is the mechanism, then education is the signal of ability, not savings.

Finally, even if savings were an indicator of ability, current models only show that a marginal tax on savings is desirable.[23] The models do not support anything like an income tax, which imposes a tax on savings at the same rate as the tax on labor income. Perhaps better models would show that the tax on savings should be large, but the current work, including everything cited by Shaviro, does not come close to supporting an income tax.

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17. The adoption of an income tax would not be perverse if the behavior of spenders were fixed and unaffected by the return to savings. In that case, it would benefit a worse-off group and not exacerbate the problem it is designed to alleviate. But we are unaware of anyone who has made this empirical claim.

18. This is the final argument in our ordering, not Shaviro's.

19. J.A. Mirrlees, *Optimal Tax Theory: A Synthesis*, 6 J. PUB. ECON. 327, 341-44 (1976) (demonstrating that the presence of multi-dimensional taxpayer heterogeneity changes optimal tax selection).

20. Emmanuel Saez, *The Desirability of Commodity Taxation Under Non-Linear Income Taxation and Heterogeneous Tastes*, 83 J. PUB. ECON. 217, 225-26 (2002).

21. *See* Bankman & Weisbach, *supra* note 3, at 1453-55.

22. Saez, *supra* note 20, at 228 (explaining the desirability of taxing certain forms of consumption in the presence of taxpayer heterogeneity).

23. For example Saez's model only supports a marginal tax on savings even assuming that it is an indicator of ability. *See id.*

Shaviro also raises the possibility that savings might be signal for the ability to transform consumption into utility. If this were true, savers would get more utility out of a unit of consumption than spenders. Shaviro does not, however, give any reason to imagine why savers and spenders would differ in this respect. Moreover, as Shaviro notes, there is no clear-cut intuition that this difference, if it exists, would cut in support of an income or a consumption tax.

CONCLUSION

In our original paper, we framed the debate between an income tax and a consumption tax as a debate over idealized systems.[24] Shaviro argues that a debate over idealized systems misses many important issues, particularly tax implementation.

We agree with this point. Implementation should be central to the debate, and theoretical models that do not include implementation can lead us astray. Although more work needs to be done, it is likely, as Shaviro concludes, that implementation concerns lean heavily toward consumption taxation.

Nevertheless, the debate over idealized systems is important because it focuses research. If a consumption tax is preferable but has implementation issues, we end up with a very different research agenda than if a consumption tax is a bad idea. In the former case, research resources should be devoted to determining how best to implement a consumption tax, while in the latter case, they should not. Moreover, ideals matter because if ideals can only be reached at a cost, we must determine to what extent we should bear that cost.

In our prior paper, we argued that an ideal consumption tax is preferable to an ideal income tax. Shaviro raises additional arguments that we did not consider in our prior work. After considering these arguments, we conclude that an ideal consumption tax is still preferable.

Perhaps the lesson from Shaviro's article is that one can never be sure because models are, after all, just models. We must always continue to develop better models, to better understand the world and how the tax system can improve market outcomes. If this is his message, we agree.

24. We were not alone in framing the debate this way. *See, e.g.*, Alvin Warren, *Would a Consumption Tax Be Fairer than an Income Tax?*, 89 YALE L.J. 1081 (1980).